APS Users

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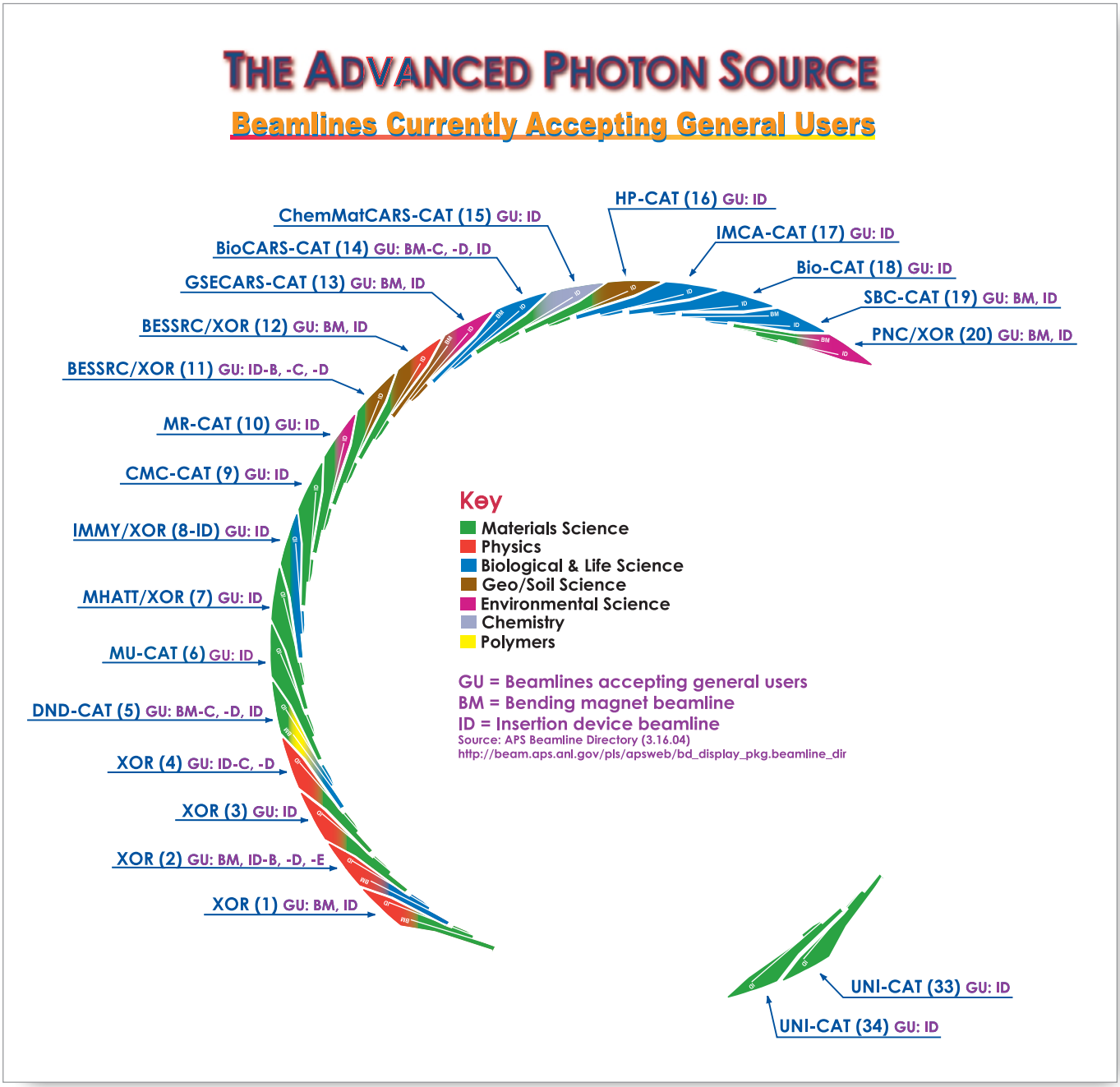
More than 5,000 members of the synchrotron radiation research community are users of the APS. As the number of APS users continues to increase, the APS facility and organization are evolving, finding new ways (and improving established practices) of serving the client base. Whether these changes involve reorganized groups or technological innovation, the goal is always to provide an environment where users can make the most of their time here. Reflecting the current reality of a maturing facility, a rapidly growing and evolving user community, and a greater facility role in operation of DOE-BES-supported sectors, APS ALD Murray Gibson committed an increased portion of the fiscal year 2003 budget to user support.

The APS User Program

User Access to the APS

Scientists and engineers who use the APS are granted access through several different scientific peer-review processes. Early APS users were all members of collaborative access teams (CATs)—groups who built, funded, managed, and used APS beamlines following scientific approval by a high-level peer-review body, the Program Evaluation Board, and administrative approval by the APS. In return, CAT members were allowed to use APS beamlines for 100% of the time during the first year of operation. Following that first year, they were allowed to use 75% of the beam time and required to provide the remaining 25% of the time to outside users (first called independent investigators, now general users [GUs]) who submit proposals for limited amounts of beam time. General users come to the APS to do their own research. Unlike CAT members, GUs do not pay for nor operate beamlines. As the APS has evolved, a number of beamlines have transitioned to APS funding and management. These beamlines now make up a much larger percentage of beam time (up to 80%) available to GUs.

In 2003, a new, more flexible, model was developed for users partnering with the APS. These “partner users” include



not only CATs and members of previous CATs but also groups involved in focused projects of smaller scope that make lasting improvements to the facility. For example, a CAT, which constructs, finances, and operates one or more beamlines, is considered the most comprehensive type of partner user. More limited partnerships involve the development of dedicated stations, instruments, or capabilities or the establishment of new user committees.

The APS General User Program

During 2003, the first complete year for the fully Web-based GU proposal submission, review, and allocation system (in which individual CAT programs were consolidated into an APS-managed central system), steady increases were seen in the numbers of new proposals and beam-time requests, as well as in the number of beamlines and shifts available to GUs (see Tables 1 and 2, next page).

Two types of GU proposals can be submitted: individual and program. Individual proposals are for single experiments and are valid only until scheduled, whereas program proposals, which are valid for a two-year period, describe research programs that require a series of visits to the APS over an extended period of time. In general, proposals are peer reviewed by one of eight scientific Proposal Review Panels before beam-time allocation and scheduling. However, in some cases, a proposal can be submitted with a rapid-access beam-time request for unallocated time during a current run, and then reviewed retrospectively.

During 2003, 830 new proposals were submitted. For Run 2003-1, the majority being individual proposals (Table 1).

Table 1. General-user requests for beam time during CY 2003.[1]

Run	New individual proposals	New program proposals	Beam-time requests on reviewed proposals	Rapid-access requests	Total beam time requests	Number of requests receiving approval
2003-1	130	100	90	20	340	210
2003-2	230	100	30	70	430	300
2003-3	230	100	100	80	510	320
Total	590	300	220	170	1280	830

[1] All numbers have been rounded. The 90 requests on previously reviewed proposals for 2003-1 represent legacy proposals from a previous system.

However, although the total number of new program proposals remained constant for the three cycles, program proposals remain active for two years, so by year's end, the number of active program proposals had increased significantly. The total number of beam-time requests for the year (1270, also shown in Table 1) provides the best measure of demand. (Beam-time requests must be submitted for each cycle in which a user wants to visit the APS.) Sixty-five percent of the submitted beam-time requests received time during 2003.

The APS Partner User Program

As described above, APS partner users, as differentiated from general users, contribute to the facility beyond performing excellent scientific research, and consequently, they require guaranteed access for longer periods and/or greater amounts of time than can be obtained through the general-user program. Although partner-user proposals for the development of a full beamline or sector can be submitted at any time for any unallocated areas on the APS experiment floor, proposals for developments of more limited scope can be entertained only for sectors where the APS provides full or partial operational support. The first call for partner user proposals of limited scope came in the summer of 2003 for beam time beginning with Run 2003-3. Seventeen proposals were received. Nine of these were approved for periods ranging from 1 to 3 years, with allocated beam time ranging from 5% to 30% per run. Figure 1 shows the six beamlines with approved partner users for Run 2003-3, as well as the percentage of beam time allocated to partner users on each.

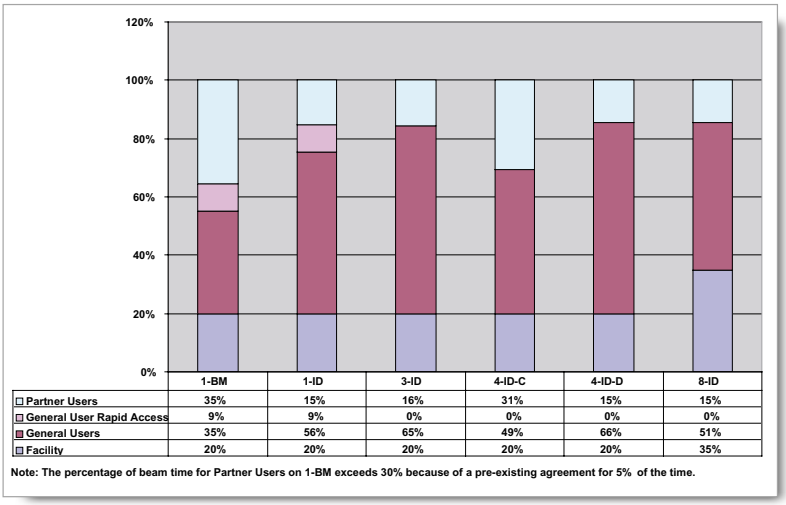


Fig. 1. Beam time by type of user on all beamlines with allocated partner user time for Run 2003-3 (the final run of Calendar Year 2003).

Outreach

To communicate the availability of GU beam time, and to expand the GU base, this year the APS instituted a GU outreach program, which involved the organization of exhibits at specific scientific meetings. These exhibits, staffed by beamline scientists and representatives of the APS User Office, were focused on the research interests specific to each meeting. For example, the first effort, at the American Crystallographic Association meeting in July 2003, highlighted research opportunities in structural biology (Fig. 2 shows the backdrop for the exhibit). At least one-third of the more than 800 meeting atten-

Table 2. Shifts and beamlines available for GUs in CY 2003.

Run	Beamlines available	Regular GU shifts	Rapid-access shifts	National user facility shifts (estimated)[1]	Approximate number of total shifts available
2003-1	32	1920	100	480	2500
2003-2	33	2140	140	720	3000
2003-3	34	2300	130	570	3000
Total		6360	370	1780	8500

[1] National user facility (NUF) shifts are those used and allocated by collaborative access teams that operate entirely on a general-user proposal basis. Proposals are received and reviewed by the APS, but only 25% of the time is allocated by the APS. Since the number of NUF shifts is estimated, the total number of available shifts is approximate.

Fig. 2. Display prepared for the 2003 American Crystallographic Society meeting

Fig. 3. Left to right: Jim Viccaro (Executive Director, Consortium for Advanced Radiation Sources; Principal Investigator, ChemMatCARS, APS sector 15; and Chair, APS Partner User Council), Pedro Montano (Program Manager for X-ray and Neutron User Facilities, DOE-BES), and Alec Sandy (XFD) meet at the APS exhibit at the fall 2003 Materials Research Society meeting.

dees stopped at the APS booth to pick up materials, discuss potential research opportunities, and learn how to use the online proposal submission system. An equally successful venture was an exhibit at the December 2003 Materials Research Society meeting in Boston, which had an attendance close to 5000. Figure 3 is a photo taken at the APS exhibit during that meeting. ❍

News from APS User Groups

The Inelastic X-ray Scattering Collaborative Development Team (IXS-CDT) and the Nanoprobe-CDT at the ANL Center for Nanoscale Materials (CNM) are the 22nd and 23rd research groups, respectively, to sign Memoranda of Understanding (MOUs) for construction of x-ray beamlines at the APS. (Collaborative development teams represent a new kind of partner-user arrangement at the APS. They are similar to the more traditional collaborative access team during the construction and commissioning phases but becomes an APS facility beamline during operations, open to competitive access by both general and partner users.)

IXS-CDT

With strokes from four ceremonial pens at a September 15, 2003, MOU signing ceremony (Fig. 4), the IXS-CDT became the 22nd research group to sign up for construction of x-ray beamlines at the APS. APS staff will construct the IXS-CDT beamline at sector 30 on the APS experiment hall floor. John Hill (Brookhaven National Laboratory) is the Executive Director of IXS-CDT; Ercan Alp (ANL/XFD) is the Managing Director.

Fig. 4. Pens at the ready, ANL Associate Laboratory Director and APS Director Murray Gibson (left); John Hill (BNL), Executive Director of IXS-CDT; ANL Deputy Laboratory Director Donald Joyce; and Miles Klein (U. of Illinois at Urbana-Champaign), IXS-CDT Executive Board Chairman, prepare to sign the IXS-CDT Memorandum of Understanding at a ceremony held at the APS.

The IXS sector intends to be the best in the world for inelastic x-ray scattering, a critical synchrotron x-ray application that takes full advantage of the brilliance from third-generation synchrotrons such as the APS. The IXS-CDT will have two specialized spectrometers: HERIX, a high-resolution inelastic x-ray scattering instrument for studies of lattice vibrations, and MERIX, a medium-resolution spectrometer for electronic structure measurements.